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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/539,412	03/30/2000	Masaharu Ogawa	Q56557	8161

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EXAMINER
LEE, SHUN K

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 04/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/539,412	OGAWA ET AL.	
	Examiner	Art Unit	
	Shun Lee	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *5* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 March 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of species I (claims 2-4) in Paper No. 9 is acknowledged.

2. Claim 5 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

Information Disclosure Statement

3. The information disclosure statement filed 28 June 2000 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

4. The drawings are objected to because:

(a) in Figs. 2A-2D, "17a" should probably be --16a-- and "16a" should probably be --17a-- (see last paragraph on pg. 27 to first paragraph on pg. 29);

(b) in Fig. 16B, "92" should probably be --93-- (see Fig. 3B); and

(c) in Fig. 25A, "58" should probably be --59-- (see pg. 70, lines 5-10).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because:

(a) they include the following reference sign(s) not mentioned in the description: Wc' and Wb' (Fig. 20B); and

(b) they do not include the following reference sign(s) mentioned in the description: D1 and D2 (Fig. 20B, pg. 62, lines 9 and 11), 35a (Figs. 22A and 22B), 45a (Figs. 23A and 23B), 55a (Figs. 24A and 24B), and e2 (Figs. 25A and 27A).

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The disclosure is objected to because of the following informalities:

(a) in line 16 on pg. 24, "PUK" should probably be --PVK--;

(b) in line 12 on pg. 60, "20" should probably be --20a-- (*i.e.*, reference sign "20a" in Figs. 18A-18C and 19A-19B is not mentioned in the description, see 37 CFR 1.84(p)(5)); and

(c) in line 9 on pg. 74, "irradiated with" should probably be deleted.

Appropriate correction is required.

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 4, 8, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuji *et al.* (US 5,196702).

In regard to claims **1** and **4**, Tsuji *et al.* disclose (Fig. 1) a radiation solid-state detector which has a charge storing section (103) for storing the charges of the quantity corresponding to the dose of the radiation which has been projected, and records radiation image information as a static latent image in said charge storing section (103), wherein

(a) a first electrode layer (104) having permeability to radiation for recording (100) or light emitted by excitation on the radiation,

(b) a photoconductive layer for recording (101) which exhibits conductivity when irradiated with said radiation for recording (100) or said light,

(c) a photoconductive layer for reading (102) which exhibits conductivity when irradiated with an electromagnetic wave for reading (110), and

(d) a second electrode layer (105) having permeability to said electromagnetic wave for reading (110), are provided in this order,

and a first conductive member (105) for outputting an electric signal corresponding to the quantity of the latent image charges stored in said charge storing section formed between said photoconductive layer for recording (101) and said photoconductive layer for reading (102) is provided in said second electrode layer (105).

In regard to claim **7** which is dependent on claim 1, Tsuji *et al.* also disclose (Fig. 1) that a trap layer (*e.g.*, electron capture layer; column 12, lines 11-15) for catching said latent image charges is provided between said photoconductive layer for recording (101) and said photoconductive layer for reading (102), and the trap layer forms said charge storing section (103).

In regard to claim **8** which is dependent on claim 1, Tsuji *et al.* also disclose (Fig. 16) that the electrode constituting said second electrode layer and/or said first conductive member is a stripe electrode (1605) comprising a number of linear electrodes (1605a, 1605b).

In regard to claim **11**, the method steps are implicit for the apparatus of Tsuji *et al.* since the structure is the same as the applicant's apparatus of claim 1.

In regard to claim **13** which is dependent on claim 1, Tsuji *et al.* also disclose (column 1, lines 9-43) a radiation image reading device including the radiation solid-state detector in Fig. 1 in which radiation image information has been recorded as a static latent image, comprising an image signal acquisition means (*e.g.*, 1408 in Fig. 14;

1608, 1664, 1665 in Fig. 16; column 28, lines 11-14) which, by reading out the charges corresponding to the latent image charges stored in the charge storing section of said radiation solid-state detector through said first conductive member, provides an electric signal at a level corresponding to the quantity of said latent image charges.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 2, 3, 9, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji *et al.* (US 5,196702) in view of Swank *et al.* (US 4,085,327).

In regard to claims **2** and **3** which are dependent on claim 1, the radiation solid-state detector of Tsuji *et al.* lacks that the first conductive member is spaced from the second electrode layer (*i.e.*, at a location in the photoconductive layer for recording

which is close to the photoconductive layer for reading or on the face of the photoconductive layer for recording which is facing the photoconductive layer for reading). Swank *et al.* teach (column 2, lines 8-53) to provide at least one conductive member disposed substantially transverse to or spaced from a stripe electrode in order to reduce total device capacitance. Therefore it would have been obvious to one having ordinary skill in the art to space the first conductive member from the stripe electrode (*i.e.*, second electrode layer 105) in the radiation solid-state detector of Tsuji *et al.*, in order to reduce total device capacitance as taught by Swank *et al.*

In regard to claim **9** which is dependent on claim 1, Tsuji *et al.* also disclose (Fig. 16) that the electrode constituting said second electrode layer and said first conductive member is a stripe electrode (1605) comprising a number of linear electrodes (1605a, 1605b). The radiation solid-state detector of Tsuji *et al.* lacks that the linear electrodes of said first conductive member are disposed so that they are opposed to or almost orthogonally intersect the linear electrodes of the electrode constituting said second electrode layer. Swank *et al.* teach (column 2, lines 8-53) to provide at least one conductive member disposed substantially transverse to or spaced from a stripe electrode in order to reduce total device capacitance. Therefore it would have been obvious to one having ordinary skill in the art to dispose the first conductive member substantially transverse to the stripe electrode (*i.e.*, second electrode layer 105) in the radiation solid-state detector of Tsuji *et al.*, in order to reduce total device capacitance as taught by Swank *et al.*

In regard to claim **10** which is dependent on claim 1, Tsuji *et al.* also disclose (column 1, lines 9-43) a radiation image recording method which projects radiation onto the radiation solid-state detector in Fig. 1 to store the charges of the quantity corresponding to the dose of the projected radiation in the charge storing section of said radiation solid-state detector as latent image charges for recording of radiation image information as a static latent image in said charge storing section. The method of Tsuji *et al.* lacks a control voltage to adjust the electric field formed between both electrode layers by a DC voltage applied across the first electrode layer and the second electrode layer in said radiation solid-state detector is applied to said first conductive member. Swank *et al.* teach (column 2, lines 8-53) to provide at least one conductive member held at a potential and disposed substantially transverse to or spaced from a stripe electrode in order to reduce total device capacitance while increasing the readable charge pulse. It should be noted that a change in capacitance of parallel plates (*i.e.*, first electrode layer and second electrode layer) results in a change in the electric field between the parallel plates. Therefore it would have been obvious to one having ordinary skill in the art to adjust the potential of (*i.e.*, apply a control voltage to) the first conductive member in the method of Tsuji *et al.*, in order to reduce total device capacitance while increasing the readable charge pulse as taught by Swank *et al.*

In regard to claim **12** which is dependent on claim 1, Tsuji *et al.* also disclose (column 1, lines 9-43; Fig. 1) a radiation image recording device which projects radiation onto the radiation solid-state detector in Fig. 1 to store the charges of the quantity corresponding to the dose of the projected radiation in the charge storing section of said

radiation solid-state detector as latent image charges for recording of radiation image information as a static latent image in said charge storing section, comprising a voltage application means (106) which applies a DC voltage across the first electrode layer and the second electrode layer in said radiation solid-state detector. The radiation image recording device of Tsuji *et al.* lacks a control voltage application means for applying, to said first conductive member, a control voltage to adjust the electric field formed between both electrode layers by a DC voltage applied by said voltage application means. Swank *et al.* teach (column 2, lines 8-53) to provide at least one conductive member held at a potential and disposed substantially transverse to or spaced from a stripe electrode in order to reduce total device capacitance while increasing the readable charge pulse. It should be noted that a change in capacitance of parallel plates (*i.e.*, first electrode layer and second electrode layer) results in a change in the electric field between the parallel plates. Therefore it would have been obvious to one having ordinary skill in the art to adjust the potential of (*i.e.*, apply a control voltage to) the first conductive member in the radiation image recording device of Tsuji *et al.*, in order to reduce total device capacitance while increasing the readable charge pulse as taught by Swank *et al.*

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji *et al.* (US 5,196702) in view of Kempter (US 4,535,468).

In regard to claim **6** which is dependent on claim 1, the radiation image recording device of Tsuji *et al.* lacks that the charge storage section is a charge transporting layer which acts roughly as an insulator for said latent image charges, and roughly as a

conductor for charges opposite in polarity to the latent image charges is provided between said photoconductive layer for recording and said photoconductive layer for reading. Kempter teaches (column 3, line 55 to column 4, line 17) to provide as the charge storage section a charge transporting layer which acts roughly as an insulator for the latent image charges (*i.e.*, latent image charges are trapped and thus acts roughly as an insulator for the latent image charges), and roughly as a conductor for charges opposite in polarity to the latent image charges (*i.e.*, storage layer permits migration of charges to neutralize trapped latent image charges and thus acts roughly as a conductor for charges opposite in polarity to the latent image charges) in order to obtain complete erasure so as to prevent formation of ghost images. Therefore it would have been obvious to one having ordinary skill in the art to provide a charge transporting layer as the charge storage section in the radiation image recording device of Tsuji *et al.*, in order to obtain complete erasure so as to prevent formation of ghost images as taught by Kempter.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on (703) 308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878

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April 23, 2002